Integration of Community-Building Strategies and Techniques in an Online Learning Course during Design and Development

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Abstract

The web has received widespread acceptance and use for creating and supporting learning activities across disciplines within higher education. However, effectiveness and satisfaction of learners with the online course for purposes of learning has not shown clearly. Creating an online community for supporting learners is one strategy that has been recommended for increasing retention and satisfaction of learners. A lot of recently research on online learning gives credence to the online learning community that could motivate and engaged online learners through social interaction lead to more satisfaction and retention.

However, while an online learning community is necessary, the formation of such community is not easy and may be problematic. Identifying successful strategies and techniques for enabling online learning community to be developed is a critical step toward making the goal of online learning a reality.

The purpose of this article is to show the theories and results from author's studies about integrating of online community-building strategies and techniques in an online learning course in computer literacy in faculty of pharmaceutical sciences, Chulalongkorn University, Thailand and purpose a guideline strategies and techniques for integrating online learning community in an online learning course.

Keywords

Online learning community, Online learning community-building guideline strategies and techniques

Introduction

Online learning is a new teaching and learning environment that have at least six different dimensions from the traditional teaching and learning environment. The six dimensions are **interactive** (i. e., students can interact with each other, with tutors, and with facilities on the web), **multimedial** (i. e., learning materials on the web show at least two of a variety of multimedia elements, such as text,

graphic, audio, video, animation, etc.), **open** (i.e., students have the possibility to move outside their learning environment and visit other sites on the WWW, as opposed to a closed system like CD-ROM), support both **synchronous and asynchronous computer-mediated communication (CMC)** and other Internet applications (e.g., online group collaboration tools, web boards, remote database access, ftp, telnet, HTML editors, etc.), **human- and computer-driven** (i.e., learning is supported by human tutors or other students on- or offline, but also by software containing, for example, learning materials or online evaluation forms), **device, distance, and time independent** (i.e., students can enroll in a WBI course from any place in the world, using any computer platform, and at any time of day). (Astleitner, 2001)

All online learning dimensions can apply to support various instructional models and instructional strategies, which contribute to the effectiveness of teaching and learning process. On the other hand, the lack of face-to-face interaction in online learning environment poses enormous challenges to instructors and learners. The instructor cannot look around the classroom to see if students are attending, are bored, are confused, or are even present. Students lack of natural social environment, which can lead to feeling of isolation, which developed to boring, attrition and drop out from the online course. (Misanchuk & Anderson, 2001) Online learning community is one of strategies to bring social back to the students.

MacNeil (1997) defined learning community from the social learning aspect as "a common place where people learn through group activity to define problems affecting them, to decide upon a solution, and to act to achieve the solution. As they progress, they gain new knowledge and skills." From the above definition, online learning community can be defined as "learning community that all activities and interactions are take place in online environment." (Hiltz, 1998)

Paloff and Pratt (1999) defined essential objectives for online learning community as

- To achieve a deeper understanding of learning content and knowledge themes, to work together to solve problems, to exchange experience and develop new knowledge.
- To support the socialization process among the members of the group through group learning and community activities.
- To promote the development of formal and informal learning groups in order to exchange implicit as well as empirical knowledge, to provide opportunities for informal discourse and freedom for ideas, integrated into the natural working environment in which the knowledge has been developed and proven.
- To aim to achieve higher student motivation and a greater sense of responsibility for successful learning, and to minimize the dropout rate (in curricular learning community).

However, while an online learning community is necessary, the formation of such community is

not easy and may be problematic. Identifying successful strategies and techniques for enabling online learning community to be developed is a critical step toward making the goal of online learning a reality.

This presentation covers the theoretical frameworks that underlining the online learning community-building strategies and techniques and author's past experiments on online learning community then summarized a general guideline strategies and techniques for integrating online community-building in an online learning course.

Theoretical frameworks

1. Theory of Online Learning Community (Tu & Corry, 2002)

Office of learning technologies (1998) defines online learning community from basic components: community, learning, network, and technology. Community considers geographical community and community of interest. Network is either physical or virtual, determined by the use of technologies. Learning should be a combination of formal, informal, and non-formal. Finally, technologies must consider the level of intensity, nature and focus, network-specific or learning-specific.

Tu and McIsaac's (2002) suggested that in building an online learning community, one must

(a) Foster and gain a better understanding of online learners' social learning context (social relationship, personal characteristics, and personal perceptions on online technology)
(b) Conduct appropriate use of CMC technologies (understand the characteristics of each CMC medium, use paralanguage and emoticons to compensate for the lack of non-verbal cues); and
(c) Engage learners in the design of interactive activities (to be responsive, to use appropriate communication style, to apply collaborative activities, and to adopt appropriate group size).

Tu & Corry (2002) proposed theoretical construct for online learning community based on necessarily grounded in the social learning process and Office of Learning Technologies' (1998) four elements (community, network, learning, and technology) of online learning community. As figure 1

Community of Practice (CoP)

CoPs are groups of people who share similar goals and interests; and, in doing so, employ common practices, work with the same tools and express themselves in a common language. Through such common activity, they come to hold similar beliefs and value systems (Collaborative Visualization (CoVis) Project, 2000; Wenger, 1998). These groups of professionals are bound informally to one another through exposure to a common class of problems, a common pursuit of solutions, and embody a store of knowledge. Tu and McIsaac (2002) suggested that several factors should serve as a model

for building a CoP for education reform: determine knowledge; build important topics/issues; gain members' background context; and design pull technology. One must determine which connections to make between learners, to understand what kind of knowledge to share; what kind of community it is inclined to be; and how tightly sharing knowledge needs to link with work.

Collaborative Learning

The "collaborative learning" refers to an instruction method in which students at various performance levels work together in small groups toward a common goal. The learners are responsible for another's learning as well as their own. Thus, the success of one student helps other students to be successful. Hiltz and Turoff (1993) and Hiltz (1998) purposed a few strategies to enhance collaborative learning. Some examples of collaborative learning activities are seminar-style presentations and discussions, debates, group projects, simulation and role-playing exercises, and collaborative composition of essays, exam questions, stories, or research plans.

Social Presence

Social presence is one of most critical factors in the online learning environment (McIsaac & Gunawardena, 1996; Tu & McIsaac, 2002). Social Presence is the degree of person-to-person awareness, which occurs in the computer environment. Social presence is defined as "The degree of salience of another person in an interaction and the consequent salience of an interpersonal relationship" (Short et al., 1976; Walter & Burgoon, 1992, cited in Tu (2002)). The level of social presence depends upon social context, online communication, and interactivity. The relation of engagement in CMC (computer mediated communication) and social presence is stated by Gunawarden (1995, cited in Tu (2002)) that "..By successfully "inculturating" themselves within CMC, learners promote their levels of social presence and allow themselves an opportunity for greater participation". In reverse case, when the level of social presence is high, there is a potential that online learners will engage more interactively in online activities (Tu & McIsaac, 2002).

Gunawardena (1995 cited in Tu (2002)) and Zittle (1997 cited in Tu (2002)) recommended that "In spite of the characteristics of the medium, student perception of the social and human qualities of CMC will depend on the social presence created by the instructors/moderators and the online community. Therefore, the instructor or the moderator must utilize their interaction skills and techniques, rather than that of the medium to enhance students' perceptions of social presence on CMC. (Tu, 2002)

Knowledge Construction

In a knowledge construction community, one should have the opportunity to make contributions that will enhance the total learning value of the community. Learners contribute and quickly find the best resources that are key to knowledge mining and knowledge construction. This type of knowledge

construction community will enhance online learning positively and will lead to the development of more personalized, self-adaptive learning systems. Tu and McIsaac (2001) argued the importance of knowledge management tools for online learning. Making a direct connection between both explicit (recorded) and tacit (personal know-how) intellectual assets.

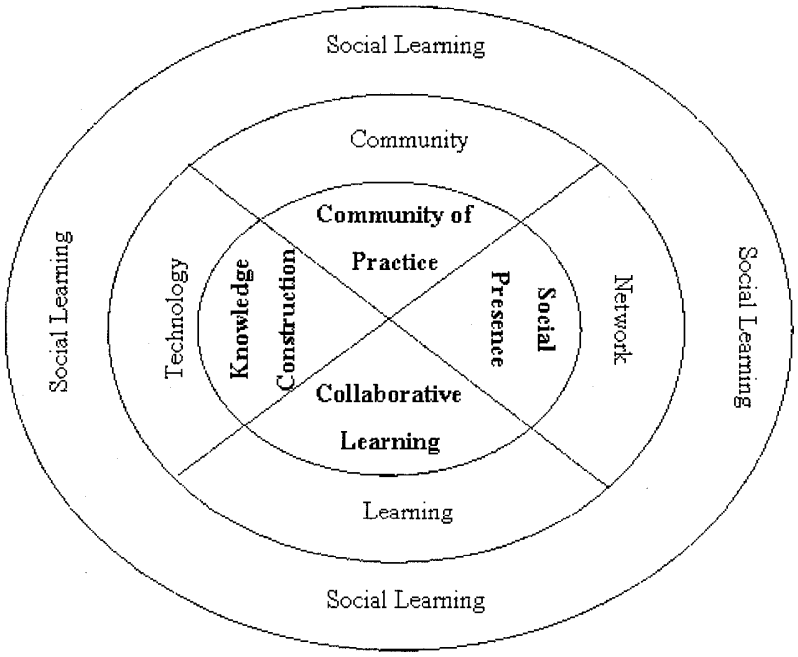

Figure 1 Theoretical framework for online learning community (Tu & Corry, 2002)

These four theoretical constructs of online learning community contributed to online learning community but more research should be conducted to study the effect and implementation of theories.

2. Theory of community-building process (Brown, 2001)

Brown (2001) developed a theory about the process through which community formed in adult computer mediated asynchronous distance learning classes. The theory covers four portions that are a three-stage phenomenon of community building, "no community" effects, Time triangles, and the process of community building.

Brown (2001) defined a three-stage phenomenon of community building. The first stage was making friends on-line with whom students felt comfortable communicating. The second stage was community conferment (acceptance) which occurred when student were part of a long, thoughtful, threaded discussion on a subject of importance after which participants felt both personal satisfaction and kind ship. The third stage was camaraderie which was achieved after long-term or intense association with others involving personal communication. Each of these stages involved a greater degree of engagement in both the class and dialogue. Students will feel that they are belonging to the commu-

nity also.

Brown (2001) defined "No community" effects as the situation of students felt that no sense of community in on-line classes. There are a lot of possibility reasons such as

- They did not think about community. They enrolled purely for the knowledge or for the credits.
- They did not want to be part of the community (to bother with positive, supportive messages and interaction in the cafeteria). They did the required work only for grade.
- They were "out of synch." He or she had health problems, family members with health problems, an overload at work, technology trouble, or other circumstances that prevented him or her from full engagement in the class.
- They had another definition of community in mind. They did not permit community to be found on-line either because they felt interaction needed to be face-to-face or because they felt community should be voluntarily assembled.
- They did not prioritize the class at a level that would have required more time and devotion. These didn't develop a "relationship" beyond the practical one. Perhaps they wanted to be part of it, but could not afford the time or would not devote the time necessary.

Brown (2001) defined "Time triangle" is the phenomenon that new student must use time to get accustom to the level technology, teaching method, course content instead of community building. On the other hand the experienced student will use less time for get accustom to technology, teaching method and use more time on course content and community building.

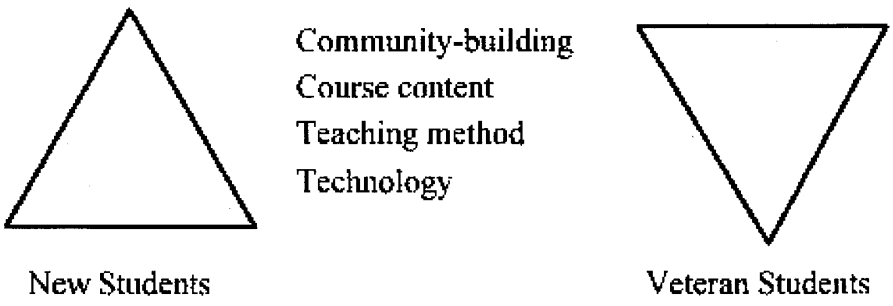

Figure 2 Time triangles (Brown, 2001)

Brown (2001) summarized that

New students (novice) needed more support and encouragement sooner than veteran students (experienced) because of the anxieties they experienced relative to the technology, pedagogy, and class content. Veterans might want this interaction, but their need for it was less since they had succeeded in "mastering the process" (they have experienced before). New students tended to want a tight class structure (shorter assignments and shorter deadlines) with frequent interaction (particu-

larly encouragement) and helpful assessment (especially validation) from the instructor at the beginning. They needs assignments that would help them get to know each other, discuss expectations, determine individual goals and that would promote sharing life experiences and professional experiences sooner. All this was less important to veteran students.

Veteran students were able to jump right into the class and begin modeling the expected behavior, supporting and encouraging peers, sharing their knowledge and experiences, reflecting on past learning, applying the content and quickly becoming engaged in the class. As new students gained experience and confidence, they began to take on some of these added responsibilities. They were able to continue friendships and/or acquaintances begun in earlier classes. They knew previous classmates' views on issues and continue discussions begun earlier, so community re-developed quickly among them. When new students jumped into these conversations, they were generally accepted, and when veterans reached out to new students, they joined in faster. However, if conversations among veterans appeared closed or if veterans did not reach out to new students, this slowed the overall community-building process.

Brown (2001) suggested about "The process of community building" in computer-mediated asynchronous classes as follows:

1. Tools. Students received textbooks and software for class, successfully loading software so that they could start the class on time, "in synch". They successfully sent the first message. Thus, the tools began to link the geographically separated individuals so that they could come together as a community.
2. Comfort level. Students gained confidence with the technology, the teaching method and style, as well as the content. Also, they began fitting the class into their personal schedules (developing a pattern of participation) and learning to function in a faceless interactive environment. This involved learning to think and write at the keyboard, learning the level (quality) of work expected, learning how to operate in and what to expect from a collaborative/self-directed learning virtual class, learning the ins and outs of the technology, devising strategies for overcoming problems with it as well as strategies for managing time, and dealing with class content.
3. Self-assessment and judgments. The new students did some self-assessment, reading what others had input and reading the responses others had received, as the new students attempted to raise their own comfort level and self-confidence. It was at this stage that some students said they found they needed to shed their shyness and/or their fear of showing ignorance and hunker down. It was at this stage they said that dropout could occur, particularly if the student had not moved through the first two steps in a timely fashion.

   As students read others' input, they made conscious or unconscious judgments about each other based on the style, content, and/or timeliness of the written messages. Students judged others' intellectual caliber according to the knowledge and understanding shown in the input. If

students input their messages just before deadline, others thought it showed that they did not place a high priority on the class. Writing styles and on-line personalities were also factors used to "judge" each other. Most participants agreed that personalities tended to "bubble out" —sooner for those with stronger virtual personalities. It was at this stage that decisions were made as to how much and with whom to participate.

4. Similarities. As students read each other's input and read about each other in the class roster, they began to find classmates with similar backgrounds, interests, ideas, or shared circumstances. Students used those similarities to begin virtual conversations. Those who were administrators began reacting to one another's input, as did those who were from community colleges, and so forth.
5. Needs met. Once students were comfortable with faceless interaction, they consciously or unconsciously determined whether interaction with others (beyond that which was required) met any of their personal or academic needs or desires. Some students enjoyed the networking, some just liked chatting in the virtual cafeteria, and some needed help with the technology or the subject matter. Those were cases where interaction beyond that required met the students' needs.
6. Time allotted. Students decided on their level of commitment and allotted their time accordingly. If this class met their personal or academic needs, they tended to allot more time to it. If it met academic needs but not personal needs or vice versa, that was reflected in the time they allotted to it. Those who enjoyed or preferred oral communication such as that found in face-to-face classes had more difficulty with the transition because they became frustrated with the amount of time needed to input messages and with the time delays necessary for responses.
7. Supportive interaction. Community-minded participants were interested in and provided positive reactions to each other's cafeteria and classroom input. Receiving such messages bolstered participants' self-confidence and raised their comfort level.
8. Substantive validation. Participants received substantive validation (not just "good job") from participants in their virtual classrooms, showing that the students' ideas and opinions were valued and respected. This was important. The student had to feel that his/her ideas were worthy of discussion.
9. Acquaintances/friends. Participants found persons toward whom they gravitated on a regular basis. Often this was because of similarities in motivation, dedication, academic or personal background. Regardless, these were people they felt comfortable interacting with and whom they thought would help them when needed.
10. Earning trust, respect. Earning each other's trust and respect was a continuing effort that anchored a virtual friendship or even an acquaintance in the classroom community. This involved students continually demonstrating both their ability and their reliability: they consistently interacted positively with well-written, knowledgeable, timely, supportive input.
11. Engagement. The student became fully engaged in both the class and the dialogue, as evi-

denced by input in the virtual classroom, small group work areas, and in the cafeteria.

12. Community conferment. The student either started or was part of a long threaded discussion, generally in the classroom. This demonstrated his/her full engagement in the class. It made the student feel part of a bigger whole, part of a classroom community that together was examining or struggling with information, an issue, or an idea. This was acceptance; it was the membership card.
13. Widen circle. Once students gained acceptance through threaded discussion they interacted more confidently with others, often even widening their circle of acquaintances or friends and receiving more validation, which bolstered their self-confidence so that they could then help bring others into the community. (One could see how veterans played a major role, conferring community on new students.)
14. Long term/personal communication. Communicating outside of virtual environment brought a reality to the virtual classmate that is more tangible and helped form or strengthens a relationship with that person or persons. Various intensities existed from e-mails to phone calls to actual meetings. Of course, face-to-face meetings probably did the most to help cement relationships begun in virtual classrooms.
15. Camaraderie. Although veterans were actively involved in the conferring of community to others, there was still one more step for them to take, one more level for them to achieve. That was achieving a feeling of camaraderie. This usually occurred after long-term and/or intense association with participants, and/or positive face-to-face interaction that followed on-line associations. It occurred almost unnoticed, less a result of particular actions or events, and more a result of an accumulation of actions and events.

Brown (2001) also concluded that the above steps did not necessarily all occur in this order for everyone, but they provide a framework for understanding the process of community building in computer-mediated distance learning classes.

3. Three principles for growing online learning community (Caleb John Clark, 1998)

Clark (1998) proposes 3 principles for growing successful email listservs and online forums in educational settings as

Principle #1: Don't build, grow.

Online learning community should be grown, not built. Online community is strongest when grown by members, as they contribute their energy to the community, into unique and supportive, environments. Clark suggested supported growing community by provided Good environment (Graphical user interface, look and feel from the design, the tone of welcome messages, the names given pass-

words and banners) and Value to share (online learning community grow best when there is value to being part of them). To have value, members must give and take information in a delicate balance. One technique to encourage value to share is to put people with questions together with people with answers on everything. (Brown, 1997)

Principle #2: Community needs strong leaders.

Online learning community needs strong leaders, whom can be called coaches or facilitators or teachers, who define the environment, keep it safe, give it purpose, identity, and keep it growing. Online community naturally develops small cores of very active people as they grow. At the same time, a large group of "lurkers" usually grows too. Stacy Horn (1998) defined lurkers as "..Those who follow the action but rarely jump in. They read but do not post. They are the voyeurs of Cyberspace. It's allowed".

Principle #3: Encourage personal narrative

Personal narrative is vital to online learning community. Personal stories and experiences add closeness, and provide identity, thus strengthening online community. Research on community, online and offline, supports the need for establishing identity. Stories are a powerful way for humans to anchor identity. Members' individual identity is critical to the formation of any close group. The value of personal narrative apply to educational settings is also apply to education. Educators need to help students form identities online because people in any group need identity for it to be a strong group. Imagine a classroom where students had no identity of their own. Identity is not only needed by members of a learning community, but the community itself needs to have an identity all its own.

Educators growing online learning community must not only ferret out the personal narrative of their students, but also create an identity for the community as a whole by sharing their own personal narratives.

Author's past experiments in online learning community

All theories should be implemented in the target environment to test and find out the application of theories in that context. Author did two experiments about forming online learning community in bachelor degree course in Pharmaceutical Science's Curriculum, Chulalongkorn University, Thailand. These two experiments were conducted before theories of online learning community are clearly defined. Through, these experiments did not design based on strong theoretical concept but the objectives, interventions complied with some aspects of those theories that were reviewed above. Results from experiments would be use as guide or direction for future research on online learning community especially in Thailand University's bachelor degree courses.

Context:

Course Title: Pharmacy application computer (Computer literacy)

Student: Pharmacy's student third year (Undergraduate student)

Credit: 1 Credit (lab credit: required 2-3 hours in classroom and 2 hours for self-study)

Number of student enrolled: 160—200 persons

Number of computer available for student in faculty:

- Computer lab 55 units
- Self study 42 units (share for all students—average 850 students, survey conducted in 2002 showed that 70 percents of all pharmacy's students had their own computer and connected to internet at home)

Models of instruction: Teacher-centered (lecture 3 hours per week for 7 weeks and hand-on Lab 3 hours per week for 7 weeks)

Evaluation: Lecture part—multiple choices with fill in the bank	40%
Lab part—skill test (use hand-on lab questions)	40%
A personal web project	10%
Classroom attendance	10%

Course Objectives:

Competency Goal 1

The learner will use a variety of technologies to access, search technology updated information

1.1 Practice and refine knowledge and skills in Microsoft Windows/Internet

1.2 Select and use appropriate technology tools to search and display data efficiency.

1.3 Use electronic resources for reference.

1.4 Select and use technological tools for class assignments, projects, and presentations.

Competency Goal 2

The learner will demonstrate knowledge in computer system component (hardware, software, people ware, data, and procedure)

2.1 Identify computer system components and practice select appropriate hardware, software for work in different situation.

2.2 Identify the role and functionality of people ware

2.3 Identify the concept of data processing and software development life cycle

2.4 Identify the important of procedure on the computer system component

Competency Goal 3

The learner will demonstrate knowledge and skills in the use of computer and other technologies.

3.1 Practice and refine knowledge and skills in word processing/desktop publishing/spread-sheets/databases/multimedia, and telecommunications in preparing classroom assignments and projects.

Rationale for doing these two experiments

As will be seen on the context of the course, the number of students enrolled in the class was around 160—200 students per course. The big number of students, with a wide range of background computer knowledge, and the nature of hand-on computer lab made teaching and learning process difficult. Students with highly knowledge, and also very interesting in computer, were frustrate about the basic content and would like to learn more advance topics. On the other hand, students with no or little basic computer knowledge would like to have more basic background and more time for studying.

In addition, the content of computer literacy changes very much from time to time. It was difficult for everyone to keep in touch and updated self computer literacy knowledge to catch the speed of the evolution. The way for student to survive in this information age is learning the skill to find updated and relevance information, learning to join and share knowledge in community of interesting that mean student should be taught to have a life long learning skill.

Author decided to implement learning community in the class and to make the community more accessible and do not depend on time and place, an online learning community was implemented.

Author's objectives were to use the online learning community to be the virtual place where student can interact between peer and also with teacher for asking questions, sharing knowledge and discussing some homework, project and current computer knowledge. Creating web site and web communication tools for supporting online learning community was not difficult, but how to forming an online learning community and sustain the community to last long is still need studied.

First experiment

Author's first experiment, which was conducted in 1999, used concept of social presence to induce online learning community forming among student. Main activities were teacher's showed himself and interacted on the course web site in both the asynchronous and synchronous communication frequently (with fix schedules). Teacher answered all the questions from students and encouraged students to interact and discussion with peer also. This experiment's objective was to find out that "Could the teacher's activities (teacher's presence) on the web course growing the online learning community?"

Student: 160 persons

(120 persons can use computer and internet, 30 persons can use only computer and 10 persons cannot use computer.

121 persons have computer and internet in their home)

Interventions:

1. Created online course website for supplement traditional face-to-face course. The web site

had communication tools both synchronous and asynchronous for supporting interaction between student-student, student-teacher.

2. Students must register for an account and password but they could decide to use either nickname (be anonymous) or the real name when they participated in the communication.
3. Teachers encouraged and supported all the students to visit and communicate via the course website by
   - Post the course hand-outs and lecture notes on course website.
   - Announce the course's news and events.
   - Teacher interacted on the chat room and answers the questions on the web board at least twice a day, six days a week. (9.00 am and 20.30 pm)
   - Teacher frequently encouraged students to use the website in the class time.

Components on the course website:

1. Course syllabus, Class Schedule
2. Announce the class's news and events.
3. Hand-outs and lecture notes from the lecture.
4. Asynchronous communication tools: web board
5. Synchronous communication tools: chat room

Data collection:

1. General information and computer skill test was collected from the beginning of the class. (by questionnaire)
2. Frequency of visits and activities was collected during the class period. (by web programming)
3. Achievement was collected from students score. (according to the evaluation criteria of the course)
4. Attitude test was collected in the last day of learning. (before they do their final examination)

Teaching and Learning Activities:

Week 1 Teacher announced the course website and states the purpose of the course website. Teacher guided students to use all the features of the website. (Include how to communicate via the web board and chat room). Let students practiced and tested communication tools (web board and chat room)

Week 2-15 Let students used the web course. Teacher interacted and answers with every student that communicated via the course website. Teacher gave the positive feedback for every good idea, good practice, and encouraged the attempt to communicate via the web course. The system kept record of all activities.

Week 8 Students took mid term examination

Week 15 Students took the attitude test and final examination

Results:

1. during the course period:

There were only 8% (12 persons) of students actively communicate (more than 4 times a week) in the first two weeks. These students had experience and very fluently in using internet. They visited and communicated via the chat room and web board. After 12 weeks, the number of students grew to 20% (32 persons) that actively visited and communicated to their friend and/or teacher. At the same time, another 9% (14 persons) visited web course but did not post or communicate any messages (lurkers).

In the week 12-15, the number of students actively communicate grew to 71%.(113 persons) The reasons for this were that they need to ask and share knowledge about creating the web project. Some asked problems about the exam. The web project was due on the last day of week 15.

2. after the course end: Teacher was not frequently visit website as usually (only two or three times a week)

   There were 10% (16 persons) of students continue visit and communicate via the course website after the first months. The number of students was 5% (8 persons) after three months and only 3 students continued to visit and communicate via the course website for longer periods (six months).

3. A questionnaire was dispensed to students for attitude test about online community and satisfaction of the computer literacy course.

   The major number of the students (90%) found that the course website was useful for communicating to teacher and their friends. They knew that they would get the answer or information soon from the teacher and the class. The top three reasons for not actively or not frequently interacted with the web course were no time (there had a lot of report to do and book to read), no question to ask, did not use internet frequently. The top three reasons for frequently interacted with the web course were they could ask questions to teacher, they were exciting to communicate via these channel, their friend were there. The students' reasons for continuing communicate via the course website ware they thought that web communication channel was so effective to communicate to their friends (asynchronous way—web board) especially in a group manner.

   About 68% of students preferred to have course website in every course. Another 23% did not want web course communication because they did not feel it natural way of communications and it took more time to communicate. 9% did not answer or answered depend on the course.

4. The students that more actively interacted in the online learning community got the score (in average) more than students that less actively interacted.

Discussion:

The experienced students would be the first group that frequently interacted in the course website. They had internal motivation and enthusiasm to try new thing. The teacher's presence, showed himself frequently in the web course both synchronous communication tools (chat room) and asynchronous communication tools (web board) and answered every questions, made students came back to web course to interact with teacher. After a period of continuing interacted in the web course, the pioneer group of students spread the news and brings up their friends. The novice students (less experienced) would use the course website when necessary (only if there was value in it such as could ask questions about homework or exam). The students that continue used the course website, after the course finished, was the same group that using it frequently before.

The findings from this experiment were

1. The presence of teacher and/or students in the online community would influence other students to join and interact with the online community. This finding supported Brown's Theory of "The process of community building" in "Widen circle effect" and also this finding was supported by Gunawardenn (1995) and Gunawardenn & Zittle (1995, 1997) (cited in Tu, 2002) that "In spite of the characteristics of the medium, student perceptions of the social and human qualities of CMC will depend on the social presence created by the instructors/moderators and the online community" and emphasized in Gunawardena and Zittle (1997) (cited in Tu (2002)) that "the system design and teacher immediacy behavior strongly impact student learning and satisfaction". Tu (2002) also stated that "The instructor or moderators must utilize their interaction skills and techniques, rather than that of the medium. This will enhance students' perceptions of social presence on CMC"
2. Value to share among community members, such as homework, group project, class project, had strong influence students to join and interact with the community. This finding was support three principles for growing online learning community that "Online learning community grows best when there is value to being part of them". (Clark,1998)
3. Encourage and support students to join the online community could motivate them to join and interact with the online community. This finding supported Brown's Theory of "The process of community building" in "Supportive interaction" and "Substantive validation"

Second experiment

This experiment, conducted in year 2001, continued from author's previous experiment but tested a different concept, collaborative learning (share content, help each other for the group project and class exam) in the design and changed some procedures from the previous experiment. Teacher was always participating in the web course as in previous experiment. This experiment's objective was to find out that "Could collaborative learning activities on the web course growing the online learning community?"

Student: 176 persons

(160 persons can use computer and internet, 13 persons can use only computer and 3 persons cannot use computer.

150 persons had computer and internet in their home)

The changing procedures were:

1. Changed the way of using online learning from the supplement way to the complement way. (some learning activities must be perform via online learning environment)
2. Students were formed in a group of five persons to do the group project. (change from personal project to group project)
3. Each student must collaborative with the group to do project such as find content, resource in the web, discuss the project content, creating project web site then published their group project on the net.
4. Every groups was freely to choose their project topic but all topics must be comply to the class theme that was "understanding computer technologies: hardware, software, networking and communications system"
5. All students were required to visit other group projects and made at least one comment or one question for understanding the content on that project. All the questions must be asked before the last week of the course and the group's owner must answer the questions completely five day before final examination.
6. One part of final examination had questions on the content of some group websites (randomly selected) to be questions.

Results:

1. During the course period:
   - The number of students that actively communicate via the web was only 3% (4 persons) in the first two weeks. After they formed groups and started their group project, the number of students actively interacted with teacher and their friends were increasing to 30% (49 persons). In the last three weeks, almost all students visiting the course website to view other groups project and asked questions as to prepare for the exam and met the course requirement.

2. After the course end: Teacher was not frequently visit course website as usually (only once a week)
   - There were only three students that continue visited the course website for the first month after finish class and completely none after two months.

3. A questionnaire was dispensed to students for attitude test about online community and sat-

isfaction of the computer literacy course.

— The major number of the students (92%—147 persons) found that the course website was useful for communicate to teacher and their friends. 85% (134 persons) of students found that this way of learning and the learning activities of the course made them learn more. The top three reasons for not actively or frequently interacted with the web course were their friends take responsibilities for asking and communicating with teacher and they did other responsibilities, no time (there had a lot of report to do and book to read), and no question to ask. The top three reasons for frequently interacted with the web course were they could ask questions to teacher, it was the requirement of the course, they could communicate with their friends.

— About 85% wanted to have web course communication in the next course. Another 10% did not want web course communication because they it took more time to join. 5% did not answer or depended on the course.

4. The students that more actively interacted in the online learning community got the score (in average) more than students that less actively interacted.

Discussion:

Students actively interact via the course website more than the previous experiment but were not as much as author's expectation in the early period of the course. The reasons for this were that author changed the assignment of project from the personal project to the group project. The way Thai students did group project was they separate work into different tasks and distribute each task to each of the student in the group. They loosely joined the group. In addition, the non-active students might hide themselves after their active friends in the group. The second reason was this experiment conducted two years after the previous experiment. The asynchronous /synchronous communication via the internet was so common for student. Students were not excited with the online community, so they were not motivated by this kind of communication.

The findings from this experiment were

1. We could foster and support the growing of online learning community by design the instruction activities to a collaborative way of learning. This finding was supported by Jenifer V. Lock (2003) That "...Communication, collaboration, interaction and participation are four cornerstones in developing an online learning community..." and Hiltz (1998) agreed that "... An online learning community with collaborative design is more effective than working individually. The ideal collaborations can be facilitated by well-constructed software to support group activities and interactions..."
2. Collaborative Learning and interaction in an online learning community were active learning activities that consume time. The tight structure curriculum and the way of traditional

teaching would not let students do effective collaborative activities.

In addition both experiments showed that:

1. The online learning community did not last long. After the course finished, the community was down also. Probably, the period of one semester is too short for growing the strong relation in community and the value we put in the community is not continue to next course/semester. Online learning community should better be grown across curriculum, grown among different courses and different level of student's competency with the foster and support from facilitators and teachers.
2. Students needed preparation process to understand the teaching method and to know the correct way to learn before the teaching process start especially when teacher use the new way of teaching. This finding supported Brown (2001) "The process of community building" and "Time triangle phenomenon".

Conclusion:

1. Through, two experiments in this article did not design based on strong theoretical concept but the objectives, interventions complied with some aspects of those theories that were reviewed above. Results from experiments are benefit for use as guide or direction for future research on online learning community especially in Thailand University's bachelor degree courses. Results could be summarized as
   - Students satisfied with the web course that has online interaction for learning between peers and teacher. (some extent of online learning community)
   - Teacher's presence has effect on student perception of "Social presence" of community and could contribute to grow learning community.
   - Setting "Value to share" among student could contribute to grow learning community.
   - "Collaborative learning activity" could contribute to grow learning community.
   - "Online learning community" could be growing but how to prolong the community is still need more studies.
   - Students involve more in online learning community seems to grain score (in average) above students who involve less.
   - Students with different background of computer and internet competency show different behavior and different stage in joining in community growing process and need different foster level / activities.
   - Online learning community should be fostered and supported to grow by using instructional strategies and techniques.
2. Author summarized guideline (include strategies and techniques) for integrating online learning community in an online learning course as

Instructional Model: should be

— Blended between multiple instructional models is recommended. For example beginning the course with some kind of teacher-direct instruction for preparing the student to get accustom to the technology tools, method of teaching and learning, the contents, objectives of the course, and the evaluation method. (Brown: Time triangle phenomenon) Student-centered model is used in the learning process and social modeled is used in the community learning process. (Brown: Theory of community-building process)

Instructional Strategies: any strategies that encourage social interaction among peers such as

— Collaborative learning (Group project)(Tu & Corry's: Collaborative Learning)

Course web site:

— Course website should be good design concern about visual and graphic user interface (GUI) and implement with features that encourage students to join (with welcome messages, have social cues) (Clark: Principle #1)
— Course website should have the personal profile section, which every community members (students, teacher(s), and facilitator(s)) could add / edit their own profile information and some narrative about them. Personal profiles will share their identity to the community. (Clark: Principle #3)
— Course website should have one or many BBS(s) (Bulletin board system) serve as cafeteria (s) for providing opportunities for informal discourse and freedom for ideas. (Brown: The process of community building)

Objectives: should

— Setting objectives for learning obviously, context relevance and authentic (Tu & Corry's: CoP (build important topics/issues))
— Setting objectives clearly stage that communication among student-student and student teacher/facilitators is required for the learning process and the degree of communication is a criterion for evaluating the achievement.(Brown: "No community" effects, Clark:Principle #1)
— Project based learning is preferred. Setting the class's project objectives and then let students choose their group project topic that relevance and set the activities that foster them to share knowledge and join discussion. (Tu & Corry's: Knowledge Construction, Clark: Principle #1)

Teacher/Facilitator Activities:

— Facilitator, at least one person, should be assigned for the online course.
— Facilitator(s) encourages communication by questioning technique that elicits the back-

ground experience, and background interest from some students to share with others. (Clark: Principle #1, #3, Brown: Time Triangles, Tu & Corry's: Social Presence)

— Facilitator(s) monitors the communications and interactions, inducing everyone, especially the lurkers, to communicate. (Clark: Principle #2, Tu & Corry's: Social Presence)

— Facilitator(s) support communication and interactions by provide positive messages/feedback to make students confidence and raised their comfort level. These can be done by give substantive validation, showing that the students' idea and opinions were valued (Clark: Principle #2, Brown: process of community building, Tu & Corry's: Social Presence)

— Facilitator(s) should continuing monitor the log file for frequency of the students' activities, in all the activities center of the course website, to identify the involvement and engagement status. (the course website should provide tools and logging information for the facilitator) (Tu & Corry's: Social Presence)

References

Astleitner, Hermann. (2001). *Web-Based Instruction and Learning: What Do We Know from Experimental Research?* Retrieved August 20, 2002 from http://rilw.emp.paed.uni-muenchen.de/2001/papers/astleitner.html

Brown, J. (1997). NoEnd in sight for San Francisco web developer group. *Wired News on the Web*, January 20th, 1998. Retrieved July 1, 2003 from http://www.wired.com/news/culture/0,1284,9749,00.html

Brown, Ruth. (2001). The Process of Community-Building in Distance Learning Classes. *Journal of Asynchronous Learning Networks, 5(2)*. Retrieved August 2, 2003 from http://www.aln.org/publications/jaln/v5n2/v5n2_brown.asp

Clark, Caleb John. (1998). Let Your Online Learning Community Grow: 3 Design Principles for Growing Successful Email Listservs and Online Forums in Educational Settings. *The Association for Computers and the Social Sciences (CSS) Annual Meeting 2000*, Chicago, IL.

Collaborative Visualization (CoVis) Project. (2000) *Community of practice*. Retrieved September 12, 2003 from http://www.covis.nwu.edu/info/philosophy/community-of-practice.html.

Hiltz, S. R., & Turoff, M. (1993). *The network nation: Human communication via computer (Rev. ed.).* Cambridge, MA: MIT Press.

Hiltz, S. R. (1998). Collaborative learning in asynchronous learning networks: Building learning communities. *WebNet 98' World Conference of the WWW, Internet, and Intranet Proceeding.* Retrieved September 12, 2003 from http://eies.njit.edu/~hiltz/collaborative_learning_in_asynch.htm.

Horn, Stacy. (1998). *Cyberville: clicks, culture, and the creation of an online town.* NY, NY. Warner Books.

Lock, Jenifer. V. (2003). Designing Online Courses that Foster the Development of Learning Communities. *Sighting 20/20 CADE-ACED 20th Anniversary.* St. John's. June 7-11, 2003. Retrieved Sep-

tember 15, 2003 from http://www.cade-aced2003.ca/conference_proceedings/Lock.pdf

MacNeil, T. (1997). Assessing the gap between community development practice and regional development policy. In B. Wharf, & M. Clague (Eds.), *Community Organizing; Canadian Experiences* (pp.149-163). Toronto: Oxford University Press.

McIsaac, M. S., & Gunawardena, C. N. (1996). Distance Education. In D.Jonassen (Ed.), *Handbook for research on educational communications and technology* (pp.403-437). New York: Scholastic Press.

Misanchuk, Melanie., Anderson, Tiffany. (2001). Building community in an online learning environment: communication, cooperation and collaboration. *Sixth Annual Mid-South Instructional Technology conference 2001.* USA.

Office of Learning Technologies. (1998). *Models of Community Learning Networks in Canada.* Ottawa, Ontario, Canada: Office of Learning Technologies by New Economy Development Group Inc..

Palloff, Rena. M., Pratt, Keith.(1999). *Building Learning Community in Cyberspace: Effective Strategies for the Online Classroom.* San Francisco, California: Jossey-Bass Publishers.

Tu, C. H. (2000). On-line learning migration: From social learning theory to social presence theory in CMC environment. *Journal of Network and Computer Applications*, 23(1), 27-37.

Tu, C. H. & McIsaac, M. S. (2001). Community of Practice for Mentoring. Paper presented at *the Annual Conference of American Educational Research Association (AERA).*

Tu, C.H. (2002). The Measurement of Social Presence in an Online Learning Environment. *International Journal on E-Learning*, April-June, 2002.

Tu, C. H. & Corry, Michael.(2002) *Research in Online Learning Community.* Retrieved March 28, 2003 from http://www.usq.edu.au/electpub/e-jist/docs/html2002/chtu.html

Tu, C. H. & McIsaac, M. S. (2002). An examination of social presence to increase interaction in online classes. *The American Journal of Distance Education, 16(3).*

Wenger, E. (1998). *Community of practice: Learning, meaning, and identity.* New York: Cambridge University Press.